REMARKS

This Amendment is in response to the Office Action mailed May 20, 2002. Claims 1-16 remain pending, and Claims 1, 6, 7, 8, 9, 10, 11, 12, 13 and 15 have been amended.

The Examiner has objected to the Specification for cited informalities. Applicants have amended the Specification, and these rejections are now believed moot. However, Applicants have not made the Examiner requested change at page 20, line 10 because there appears to be a misstatement in the Office Action regarding the wording, i.e., "once the client process," appears to be actually "Once the client process." A new sentence begins with the word "Once," and the word "not" does not appear before connection. Applicants respectfully are unable to make the specified change because the instructions are unclear. If Applicant is in error in this regard, then the Examiner is respectfully requested to make the required change by Examiner's amendment.

The Examiner has objected to the drawings and has required new drawings to be submitted in reply to the present Office Action. Applicants submit new drawings herewith, which is believed to render moot this objection. Further regarding the drawings, amendments have been made to the drawings to correct an inadvertent typographical error: a redundant use of identifier "Fig. 5" has been changed to "Fig. 5A." Additionally, legends have been added to both amended Figs. 5 and 5A. Accordingly, a letter to the Official Draftsman is included herewith. and clean and red pen versions of the proposed amendments have been provided.

In a non-final rejection, the Examiner has rejected Claims 13 and 15 under 35 USC 112. The Examiner has also rejected Claims 1-16 under 35 USC 103 as being unpatentable for being obvious over U.S. Patent 5,889,843 (Ji et al.) in view of U.S. Patent 5,862,322 (Anglin et al.). Applicants have amended Claims 1, 6, 8, 10, 12, 13 and 15, for the sake of clarity and to overcome informalities and indefiniteness, and all of these claims and any of their dependent claims are believed allowable over the cited prior art. Allowance of Claims 1-16 and reconsideration of the rejections are hereby requested.

Regarding this rejection under 103 for unpatentabilty for obviousness of pending Claims 1-16, Applicants refer to the long established three basic criteria for obviousness

that must be met if an obviousness rejection is to have proper merit. First, there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. The teaching or suggestion to make the modification and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. Please see MPEP 2143.

Applicants specify in independent Claim 1 a system having first and second processes residing on first and second computers used with backup or restore operations with a data storage system. The invention provides several advantages and in particular the claimed functionality wherein, in response to determining if a communication is from a first communication mechanism then communicating over the network, but in response to determining if a communication is from said first communication mechanism then communicating through said data storage system. Ji et al. discloses and electronic mail virus detection and elimination scheme, while Anglin is directed to end user support communications in a computing environment. Neither is directed to a data storage system environment, nor does either provide the claimed advantages for a backup and restore operation

Applicants also specify in the other independent Claims 6 and 15, a method for assisting with backup and restore operations in a computer system. Applicants' Claim 6 specifies a method of establishing at least one first connection over a network, between first and second processes residing on different computers, wherein said first connection is configured to be responsively used for communication over a network; and establishing, in parallel with establishing said at least one first connection, a second connection, through a data storage system, between said first and said second processes, wherein said second connection is configured to be responsively used for communication over said data storage system. Applicants' Claim 15 specifies receiving information about a dynamically created communication mechanism over the established connection and establishing a second connection over the network, on the dynamically communication mechanism, between said first and second processes for advantages of effliciency of the backup or restore operation. Neither of these important limitations

discussed above with reference to Claims 1, 6, and 15 are taught or suggested by either Ji et al. or Anglin et al. or by combining these two prior art references.

There must be some suggestion or motivation, either in the reference itself, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to achieve Applicants invention but here this first criterion of obviousness is not met. There is no such suggestion or motivation to modify Ji et al. in view of Anglin et al. to including internally within a storage system the specified elements of an internal local area network for improving performance to such a storage system itself. So the first prong of the obviousness test referenced in MPEP 2143 is not met.

Combining Ji et al. and Anglin et al. teachings would lead to a communication system for detecting email viruses, not Applicants' claimed system and method. Since the claimed invention is so different from the referenced prior art disclosures, there is no reasonable expectation of success of achieving Applicants' invention by modifying Ji et al. in view of Anglin et al. So the second and third prongs of the obviousness test are also not met.

In view of the arguments above, Applicants respectfully assert that Ji et al. in view of Anglin et al. does not render Applicants' claims obvious, because it fails to meet the requirements for obviousness. Applicants further respectfully assert that this rejection under 103 for unpatentability should be removed for pending Claims 1-16.

For the reasons given above, Applicants respectfully suggest that Claims 1-16 are now in condition for allowance. Accordingly, notice of allowance of these claims is hereby respectfully requested.

Attached hereto is a marked up version of the changes made to the specification and claims by the current amendment. The attached page is captioned, "Version with Markings to Show Changes."

Any fee due for this Amendment may be charged to Deposit Account No. 05-0889. Should the Examiner feel that a telephonic discussion may assist in furthering this matter toward issuance in due course or should the Examiner have concerns or questions, then the Examiner is invited to call the practitioner listed below at the number given.

Respectfully submitted,

Nov. 20, 2002

Date

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VERSION WITH MARKINGS TO SHOW CHANGES

In the Specification:

Please replace the paragraph beginning at page 8, line 11, with the following paragraph:

--Fig. 4 and Fig. 4A are two flow charts which provide an overview of the operations performed by a client process and a server process in creating and establishing a connection for file system backup or restore.--

Please replace the paragraph beginning at page 8, line 14, with the following paragraph:

--Fig. 5 and Fig. 5A are two flow charts which provide an overview of the operations performed by a client process and a server process in creating and establishing a connection for file system backup or restore.--

Please replace the paragraph beginning at page 14, line 4, with the following paragraph:

--Computer 12 which contains the server process 11 of the backup and restore application. The server process 11 includes other software modules. Included with the server process are three other software modules. In order to allow the server process 11 to facilitate a communication over the network 18 to the client process 11A, a communication mechanism 58 must be used. As in earlier network based backup and restore software applications, the preferred communication mechanism is sockets and, particularly TCP/IP sockets used to create and establish a communication to the client process 11A. Also in the server process 11 is a second communications mechanism shown at 60. In the preferred embodiment of the invention, sockets are used as a communication mechanism to facilitate communications from the server or client processes 11 and 11A through the data storage system 14 to the client or server processes 11A and 11. In the preferred embodiment of the invention, the sockets 60 are STP (Symmetrix Transport Protocol) or SSLsockets, as further described in EMC

Corporation's, assignee of the present application, pending patent application entitled "Communication Mechanism and Method for Easily Transferring Information Between Processes" filed on September 29, 1997, having serial number 08/939,772. The manner in which communications and data are transferred through the data storage system 14 with the use of communication mechanism 60 is further described in EMC Corporation's pending patent application entitled "Method and Apparatus for Transfers Employed in a Data Storage System" filed on December 30, 1997, [1997] and having serial number 09/000,540. Lastly, included in the server process 11 is a layer of software termed STP or SSLConnect, in the preferred embodiment of the invention, and shown at 54. In the preferred embodiment of the invention, this software allows the server process 11 to determine the mode or type of a particular socket call. For example, if the socket call is a normal or typical TCP/IP socket call it will process that socket call as a "normal" socket request, and use the created socket communication mechanism 58 to create and/or facilitate communications over the network 18. If however, the socket call is one specially designed for use with the data storage system 14, the STP or SSLConnect software will determine that the particular type or mode of that socket call is a socket call specially designed for data storage system 14, and will process that request as a socket call specially utilized for data storage system 14. Thus, the server process 11 will use the socket communication mechanism 60 to create and/or facilitate communications through the data storage system 14.--

Please replace the paragraph beginning at page 17, line 11, with the following paragraph:

--Figs. 4, 4A, 5 and 5A [and 5] are of flow charts designed to show how communication over the network is used to establish a one connection, while a connection is being established through the data storage system. Figs. 4 and 4A show how a file system application sets up connection over both the network and the data storage system. Fig. 4 is representative of communication which would occur in a prior [are] art network backup or restore operation. However the present invention uses the scheme shown in Fig. 4 combined with the one shown in Fig. 4A. [Fig.] Figs. 5 and 5A show [shows] how a database application establishes a connection over the network to establish a connection through the data storage system.--

Please replace the paragraph beginning at page 19, line 4, with the following paragraph:

-- At step 112, the client process creates a socket, in a similar manner as done at step 82. Since a socket is but a communication mechanism, each process requires a socket in order to communicate with another process. Next that socket is bound to the WKP at step 114. At step 115, the listen command is used to define the queue of pending connection requests. At step 118, the client process is ready to accept the connection request done by the server at step 86. Once the server process becomes aware that the client process has accepted the connection request, the server process sends over a well known string or a string of zeros, as shown in step 90, to make certain that the server process is connected to the client process on the same to WKP. The client process receives the string of zeros at step 120. At this point the client process knows it is connected to the server process on the WKP. The client process also knows that another connection request should be coming. In other words, when the backup operation is initially configured by the user, the relevant configuration file has instructed the client process that there will be two connections in order to perform the backup or the restore. By receipt of the string of zeros, the client process recognizes that the first connection has occurred. Once the client process recognizes that [that] the first connection has occurred, it needs to begin the process for establishing the second connection. At step 122, the client process does this by sending to the server process the file descriptor of the currently accepted socket. The currently accepted socket is the connected socket which was begun at step 82. This file descriptor is sent to the server process at step 122. The server process receives the file descriptor at step 92.--

Please replace the paragraph beginning at page 23, line 3, with the following paragraph:

-- Now turning to [Fig] Figs. 5 and 5A, the establishment of the relevant connections for database backup or restore operation is shown. Once again only the term backup operation will be used. This differs from the process used to establish a backup for a file system in a couple of different ways. First, in a database backup, the client process initiates the communication. Second, although a connection through the network is initially used, in the final analysis all the necessary communications for the database

backup operation can occur through the data storage system. It should be understood that in essence, the network communication is initially established in order set up a connection through the data storage system.--

In The Claims

Please amend claims 1, 6, 7, 8, 9, 10, 11, 12, 13 and 15 as follows:

1. (Three times amended) A system having first and second processes residing on first and second computers used with backup or restore operations, wherein each of said first and said second computers are in communication with a data storage system storing data from at least said first and second computers and a network, said system comprising:

at least one first communication mechanism residing on both said first and second computers for facilitating communications between said first and second processes over said network;

a second communication mechanism residing on both said first and second computers facilitating communication between said first and second processes through said data storage system; and

means, within said first and second processes, for allowing said first and second processes to determine whether a communication from said first and second processes is from first or second communication mechanism ,wherein, in response to determining if a communication is from said first communication mechanism then communicating over said network and in response to determining if a communication is from said first communication mechanism then communicating through said data storage system.

6. (One time amended) A method for assisting with backup and restore operations in a computer system, the method comprising:

(a) establishing at least one first connection over a network, between first and second processes residing on different computers, wherein said first connection is configured to be responsively used for communication over a network; and

(b) establishing, in parallel with establishing said at least one first connection,

a second connection, through a data storage system, between said first and said second processes, wherein said second connection is configured to be responsively used for communication over said data storage system.

7. (One time amended) The method of claim 6, wherein step (a) comprises the step of: creating a first pair of communication mechanisms on a designated port, wherein said first pair includes a first communication mechanism and a second communication mechanism.

8. (One time amended) The method of claim 7, wherein step (a) further comprises the steps of:

requesting with [one member] said first communication mechanism of said communication mechanism pair a connection to said [other member] second communication mechanism of said communication mechanism pair; and

in response to said connection request, accepting said connection request.

9. (One time amended) The method of claim 8, wherein step (a) further comprises the step of:

creating a second pair of communication mechanisms on the designated port, wherein said second pair includes a first communication mechanism and a second communication mechanism and wherein said second pair of communication mechanisms is used for transferring a different type of information than would be transferred over said first pair of communication mechanisms.

10. (One time amended) The method of claim 9, wherein step (a) further comprises the steps of:

requesting with [one member] said first communication mechanism of said second pair of communication mechanisms, a connection to said [other member] second communication mechanism of said second pair of communication mechanisms; and in response to said connection request, accepting said connection request.

11. (One time amended) The method of claim 6, wherein step (b) comprises the steps of:

creating a third pair of communication mechanisms on a second designated port, wherein said third pair includes a first communication mechanism and a second communication mechanism.

12. (One time amended) The method of claim 11, wherein step (b) further comprises the steps of:

requesting with [one member] said first communication mechanism of said third pair of communications mechanisms a connection to said [other member] said second communication mechanism of said second pair of communications mechanisms; and

in response to said connection request, accepting said connection request.

13. (One time amended) The method of claim 12, wherein step (b) further comprises the steps of:

receiving information about a group of resources in said data storage system;

in response to receiving information about said group of resources, creating a fourth pair of communication mechanism [on a] dynamically [allocated port], wherein said fourth pair includes a first communication mechanism and a second communication mechanism; and

connecting said first communication mechanism and said second communication mechanism of said fourth pair of communication mechanism to each other through said data storage system.

15. (One time amended) A method for assisting with backup and restore operations in a computer system, the method comprising:

establishing a connection, over a network, between a first process and a second process residing on different computers;

receiving information about a dynamically [allocated port] created communication mechanism over the established connection;

establishing a second connection over the network, on the dynamically [allocated port] created communication mechanism, between said first and second processes;

identifying resources on a data storage devices to be used in order to transfer information through said storage device; and

establishing a connection between said first and second processes through said data storage system.

Database (client initiates)

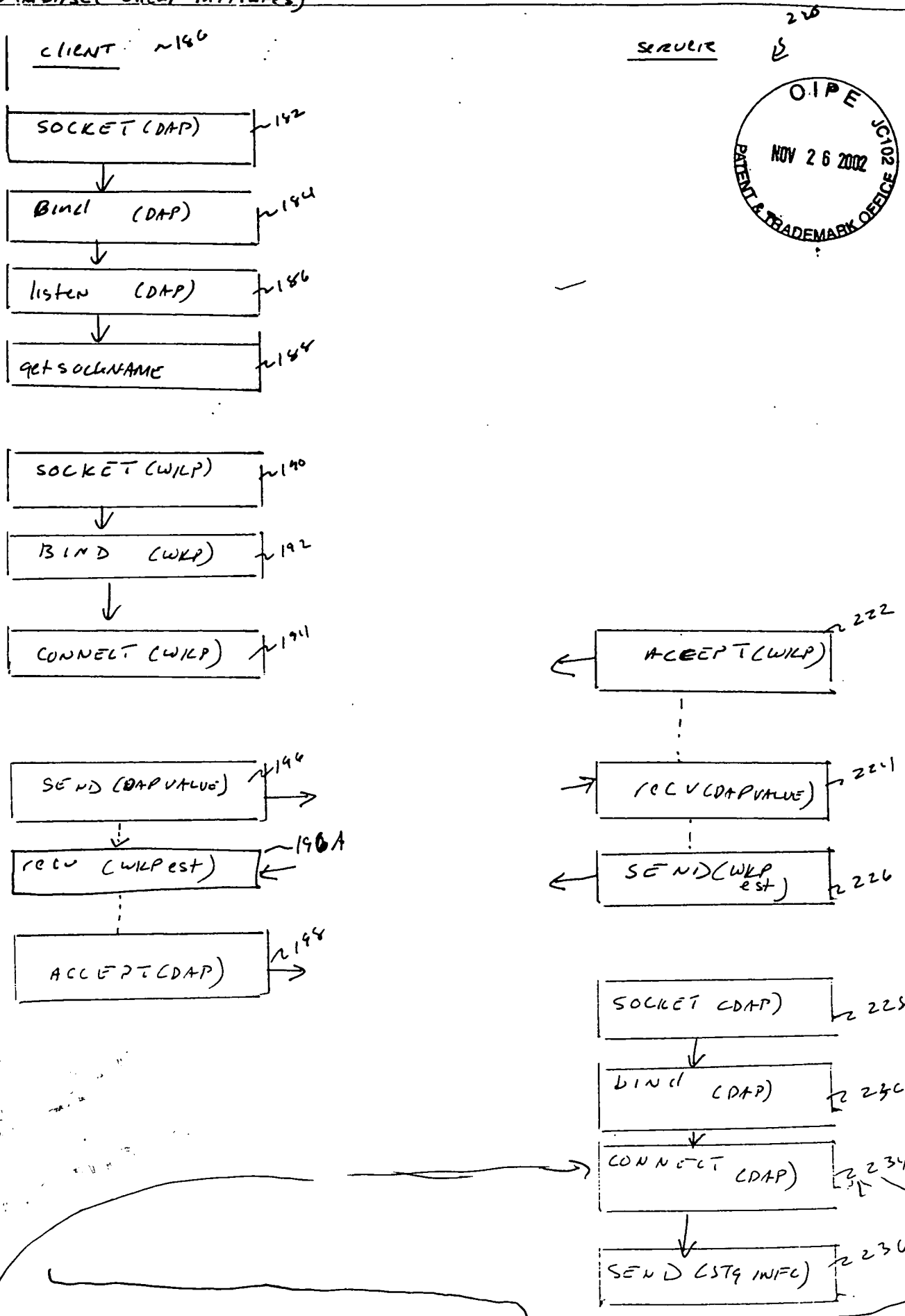
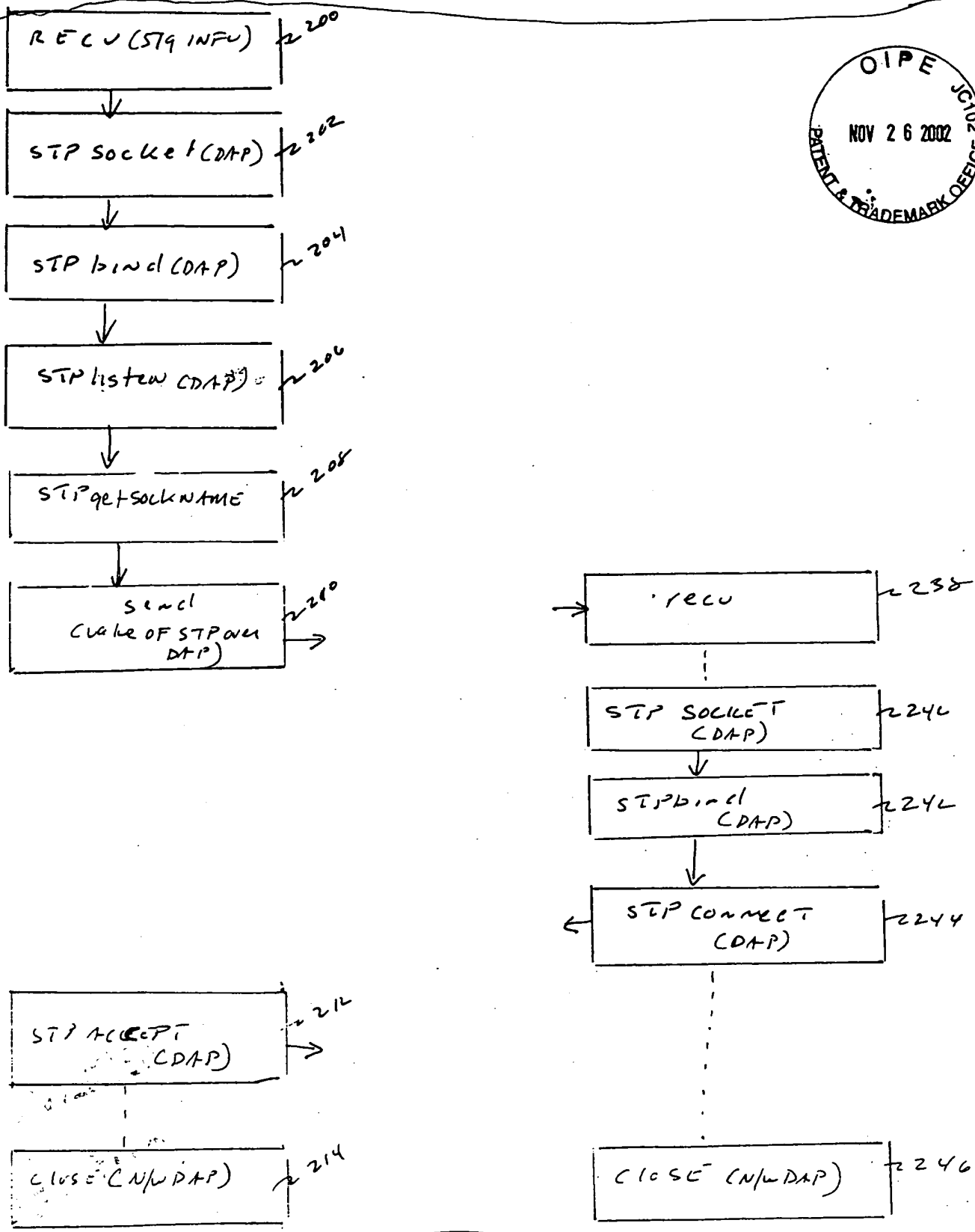


FIG 5 TO FIG. 5A

FROM FIG. 5



~~Fig 5 (continued)~~

FIG. 5A